IN THE UNITED STATES PATENT AND TRADE MARK OFFICE

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| Applicants | : | Macquarie Research Limited;<br>: Unisearch Limited |
| Serial No. | : | 09/367,009 |
| Filed | : | November 8, 1999 |
| Title | : | Diagnosis of disease using tears |
| Examiner | : | M. Davis |
| Group Art Unit | : | 1642 |



This is Annexure A referred to in my Declaration of

GARY COBON

# CURRICULUM VITAE



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| NAME | Gary Stewart Cobon. |
| DATE OF BIRTH | 30 November 1949. |
| NATIONALITY | Australian. |
| MARITAL STATUS | Married, 4 children. |



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# EDUCATION

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|---|---|---|
| **1970** | **B. Sc.** | **Chemistry, Biochemistry, Monash University, Melbourne.** |
| **1972** | **M. Sc. (qual)** | **Biochemistry, Monash University, Melbourne.** |
| **1976** | **Ph.D.** | **Biochemistry, Monash University, Melbourne.** |

# POSTDOCTORAL EXPERIENCE

1998 - present

## Macquarie Research Ltd/Australian Proteome Analysis Facility

## Senior Project Manager/Director

**Responsibilities**

Reporting to the CEO of MRL, responsible for the commercial aspects of the science projects within Macquarie University. This includes identification of projects with commercial potential, working together with scientists to prepare patents, business plans, detailed project proposals for funding, identification of major potential commercialisation approaches, approaching organisations under appropriate confidentiality arrangements and negotiating commercialisation deals. In conjunction with the Patents officer, advise on the patent portfolio in the light of progress in the examination processes and modify strategies accordingly.

Reporting to the CEO of MRL and the Deputy Vice Chancellor of Research, Direct the Australian Proteome Analysis Facility (APAF). APAF is a Major National Research Facility serving more than 200 collaborators throughout Australia and abroad. APAF is financed solely on income form collaborative contract research. Responsibilities involve ensuring that the facility operates in a commercially viable manner, that the business builds and continues to prosper and to provide the facility with a long-term future.

**Achievements**

- In two years, APAF business has increased from $350,000 per annum to $1.3M.
- Number of collaborators has increased to more than 200, 25% of which are commercial organisations.
- Income from royalties in excess of $500,000 per annum.

- Awarded one of the 15 MNRF grants to the value of $16.25M over 5 years supplemented by $2m from the NSW government and $1M from the SA government.

- Centre operating with 15 full-time staff and 13 students and visitors.

- 3 projects commercialised with international companies strongly protected by patent applications.

- Detailed business plan prepared for spin-off company.

- Project Management courses run for MRL and University staff.

1990 - 1997

## Senior Project Manager

Biotech Australia Pty. Limited.

Reporting to the Managing Director, responsible for
- planning, monitoring progress against planned milestones and budgets,
- co-ordination of multidisciplinary collaborative projects involving CSIRO, Universities, Hospitals and Departments of Agriculture,
- co-ordination of projects involving other commercial organisations including the parent company, Hoechst Marion Roussel in Germany, the UK and Brazil, and Japanese companies,
- regularly reporting progress against plans and budgets in-house to the Board of Biotech Australia, to Hoechst Roussel Vet and Toray Industries in Japan
- responsible for a budget of up to $5.6M and a team of up to 40 scientists world wide.

Achievements in Animal Health area include.
- NeoGARD, the first recombinant vaccine to be registered in the world
- TickGARD, the first registered subunit vaccine against a parasite which is registered in Australia and in Brazil.
- Recombinant vaccines against parasitic nematodes.
- Manufacture of veterinary vaccines under GMP for use in Australia and overseas.
- Active participation on the Research & Development Advisory and Scientific Advisory Committees of the CRC for Vaccine Technology ensuring a commercial focus is maintained.

Achievements in the Human Health area include.
- Manufacture of a recombinant human immunomodulator under GMP in preparation for Phase I/II human clinical trials including full quality control and complete documentation of procedures. This required the development and validation of novel QC assays and interactions with regulatory authorities on the suitability of the assays for the characterisation of the molecule.
- Input into the design of Phase I/II clinical trials.

- Representing Biotech on the successful application for syndication funding in collaboration with Dr. Elizabeth Benson of Westmead Hospital.
- Input into the detailed planning of other Human health projects.

## Senior Manager, New Projects Committee

The New Project Committee assesses all new project proposals presented to the company by a process which involves preparing detailed product descriptions, estimating market for final product, estimating cost of research, development and manufacture, cost benefit analysis including consideration of probability of success, intellectual property position and fit with project portfolio. Once a project is approved, regular literature and patent searches are instigated, detailed project plans prepared through to final product, collaborators identified, plans agreed and costed, agreement sought from manufacturing and regulatory authorities. The project is then initiated with monthly project team meetings, regular monitoring of progress against plans.

1982 - 1990

## Principal Research Scientist/Senior Research Manager

Biotech Australia Pty Limited

Reporting to the Research Director, responsibilities included reviewing all research projects for the company, assessing commercial potential of research projects including estimating probability of success, intellectual property status, supervising in-house research teams, managing collaborations with other research organisations, negotiating commercial and collaborative agreements and line management responsibility for a research group of up to 20 scientists.

Achievements included

- Initiating projects which form the basis of the animal health portfolio of the company including novel vaccines against parasites
- Co-inventor on 8 patent applications which protect the major antigens in the company animal health portfolio.
- Cloning, sequencing and expressing the genes for the major antigens in the animal health portfolio including genes for antigens for tick and nematode vaccines.
- Managing collaborations with the CSIRO which led to the prominent international position held by Biotech in the parasite vaccine area.

1978 - 1982

## Res arch fellow/lecturer

Department of Biochemistry,
Monash University, Melbourne.

In collaboration with Professor Linnane, the key funding was obtained from CSL which formed the basis of the Center for Molecular Biology and Medicine. Responsible for the major project of the Center, the cloning of genes for human interferons and characterisation of interferon activities. Research involved studies into the transcription by yeast mitochondria and the discovery that both strands of the mitochondrial genome are completely transcribed. This involved establishing much of the basic molecular biology technology within the department.

1976 - 1978

## Postdoctoral research fellow

Duke University Medical Centre,
Durham, North Carolina.

Supported by a personal fellowship awarded by the US Leukemia Society, studies involved investigations into the alterations to cell-surface antigens which occur following transformation of cells with RNA tumor viruses, studies of the RNA of temperature sensitive mutants of reovirus, the induction of interferons by UV-irradiated reovirus, the purification of mouse interferons and the isolation of RNA from mouse L929 cells infected with UV irradiated reovirus with the objective of cloning mouse interferon genes.

1972 - 1976

## Ph. D student

Department of Biochemistry,
Monash University.

Investigations into mitochondrial phospholipid synthesis in yeast. Studies of the effects of alterations of membrane sterol and unsaturated fatty acid composition on the activity of mitochondrial membrane bound enzymes. Demonstration that mitochondrial ribosomes are membrane bound. Research involved fermentation of yeast in continuous chemostat cultures.

## MANAGEMENT TRAINING

While a Senior Consultant with Corporate Project Management Group (CPMG) I was a facilitator on their Project Management training courses. I ran three courses, a three-day Best Practices in Project Management, a 6-day Certificate in Project Management and a 13-day Diploma in Project Management course (10 days course work, 2 days of workshops, 2-hour examination). The courses were presented to engineers and IT people in the main although they were of a generic nature based on the "Guide to the Project Management Body of Knowledge (PMBOK) a publication of the US Institute of Project Management. The Project Manager has 9 basic functions to manage: Scope, Time, Cost, Quality, Risk, Communications, Human Resources, Contracts/ Procurement and Integration. The Diploma course allocates one day to each of these functions. The higher qualifications required a demonstration of the abilities of the candidate to satisfy Performance Criteria in each function within their workplace. I am a qualified Workplace and RPL (Recognition of Prior Learning) assessor Level IV as a consequence of course work and practical demonstration of my capabilities.

I have attended several management training programs run by the parent companies which cover a large range of topics including setting tasks, monitoring progress, delegation of tasks and responsibilities, encouragement of poor performers, negotiation practices and management structures.

I attended a four-day course on Project Management techniques at the Australian Institute of Management. The course covered tasks and goal setting, critical tasks, milestones, GANTT and PERT charts, cost analysis and use of computer packages for project management.

In-house courses have been run on negotiation and personnel management, interaction with the media and on management of project budgets.

Conversant with the essential computer programs including EXCEL, Word and WordPerfect, MS Project and Micro-Planner, Works and several graphic programs, e-mail.

## OTHER ACTIVITIES

Co-author on more than 40 publications.

Co-editor of book entitled New Generation Vaccines Volume 2.

Co-inventor on 8 international patent applications.

Member of AVCA taskforce on Biotechnology in Agriculture which reviewed regulations in the area, monitored International regulations in relation to those in Australia and recommended alterations to policy to Government Departments.

Invited reviewer of publications in Australian Journal of Parasitology.

## PUBLICATIONS


1. Cobon, G.S. and J.M. Haslam, 1973. The effect of altered membrane sterol composition on the temperature dependence of the yeast mitochondrial ATPase. Biochem. Biophys. Res. Commun., **52:** 320 - 326.

2. Haslam, J. M., G. S. Cobon and A. W. Linnane. 1973. The use of a fatty acid desaturase mutant of *Saccharomyces cerevisiae* to investigate the role of lipids in mitochondrial membrane function. Proc. Biochem. Soc. **2:** 41 - 43.

3. Linnane, A. W., G. S. Cobon and S. Marzuki. 1973. Aspects of the evolution of the mitochondrial protein synthesising system and DNA synthesis. p. 349 - 367. *In* Proc. Third Specialised Symposium on Yeast, (Soulmalanen. H. and C. Waller eds). Part II Aiko Foundation. Helsinki, Finland.

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5. Marzuki, S., G. S. Cobon, J. M. Haslam and A. W. Linnane. 1975. Biogenesis of Mitochondria 38. The effects of altered steady state membrane fatty acid composition on mitochondrial energy metabolism in *Saccharomyces cerevisiae.* Arch. Biochem. Biophys. **169:** 577 - 590.

6. Marzuki, S., G. S. Cobon, P. D. Crowfoot and A. W. Linnane. 1975. Biogenesis of Mitochondria 39. The effects of altered steady state membrane fatty acid composition on the activity and assembly of the yeast mitochondrial protein synthesising system. Arch Biochem. Biophys. **169:** 591 - 600.

7. Linnane, A. W., S. Marzuki, G. S. Cobon and P. D. Crowfoot. 1976. Application of continuous culture to the study of mitochondrial membrane biogeneisis. *In* Mitochondrial Biogenesis. (Packer, L. ed.). Academic Press, NY.

8. Cobon, G. S., P. D. Crowfoot, M. Murphy and A. W. Linnane. 1976. Exchange of phospholipids between mitochondria and microsomes *in vitro* stimulated by yeast cytosol. Biochim Biophys ACTA. **441:** 225 - 259.

9. Cobon, G. S., P. D. Crowfoot and A. W. Linnane. 1977. Biogenesis of Mitochondria 46. The effects of catabolite repression on the *in vitro* phospholipid synthetic capacities of respiratory-competent and respiratory-deficient strains of *Saccharomyces cerevisiae.* Arch. Biochem. Biophys. **181:** 454 - 469.

10. Hall, R. M., J. S. Mattick, P. Nagley, G. S. Cobon and A. W. Linnane. 1977. The action of structural analogues of ethidium bromide on the mitochondrial genome of yeast. Mol. Biol. Reports. **3:** 443 - 449.

11. Linnane, A. W., S. Marzuki, P. Nagley, H. Roberts, M. W. Beilhartz, W. M. Choo, G. S. Cobon, M. Murphy and J. Orion. 1980. The yeast mitochondrial genome: a survey of recent developments. *In* Plant Genome. (D. R. Davies and D. W. Hopwood eds.) The John Hopkins Innes Charity, Norwich. 99 - 110.

12.Linnane, A. W., A. M. Austin, M. W. Beilhartz, C. G. Bingham, W. M. Choo, G. S. Cobon, S. Marzuki, P. Nagley and H. Roberts. 1980. Expression of the mitochondrial genome in yeast. *In* Organisation and Expression of the Yeast Mitochondrial Genome. (A. Kroon and C. Saccone eds.), North Holland Publishing Co., Amsterdam. 253 - 263.

13.Nagley, P., G. S. Cobon, A. W. Linnane and M. W. Beilhartz. 1981. Transcription of the *oli-2* region of the yeast mitochondrial DNA shows strain-dependent variation. Biochem. Int. **3:** 473 - 481.

14.Beilhartz, M. W., G. S. Cobon and P. Nagley. 1982. A novel species of double-stranded RNA in mitochondria of *Saccharomyces cerevisiae*. Nucleic Acids Research. **10:** 1070 - 1076.

15.Beilhartz, M. W., G. S. Cobon and P. Nagley. 1982. Physiological alterations of the pattern of transcription of the *oli-2* region of the yeast mitochondrial DNA. FEBS Letters. **147:** 235 - 238.

16.Cobon, G. S., M. W. Beilhartz, A. W. Linnane and P. Nagley. 1982. Biogenesis of Mitochondria 58. Mapping of transcripts from the *oli-2* region of the mitochondrial DNA in two grande strains of *Saccharomyces cerevisiae*. Current. Genetics. **5:** 97 - 107.

17.Cobon, G. S. and N. S. Willetts. 1983. The application of recombinant DNA technology to the production of antihelminthic vaccines. *In* Immunogenic Approaches to the Control of Endoparasites. (Dineen, J. K. and P. W. Outridge eds.). CSIRO Australia.

18. Adams, D. B., and G. S. Cobon. 1985. Basis for the development of vaccines for the control of disease produced by metazoan parasites. *In*: Reviews in Rural Science 6. (R. A. Leng, J. S. F. Barker, D. B. Adams and K. J. Hutchinson eds.) National Library of Australia. P 67 - 74.

19.Cobon, G. S. 1985. Genetic engineering and vaccine production. *In* Proceedings of the 67th Annual Conference of the Association of Veterinary Inspectors of NSW. (Egglestone, G. W. ed.). p 88 - 89.

20.Cobon, G. S. 1985. The application of biotechnology to animal health and productivity. *In*: Emerging Technologies for Agriculture. The Federal Presidents Symposium for 1985. (R. N. Oram and B. C. Johnston eds.)

21.Forage, R. G., J. M. Ring, R. W. Brown, B. V. McInerney, G. S. Cobon, R. P. Gregson, D. M. Robertson, F. J. Morgan, M. T. W. Hearn, J. K. Findlay, R. E. H. Wettenhall, H. G. Burger and D. M de Kretser. 1986. Cloning and sequence analysis of a cDNA species coding for inhibin from bovine follicular fluid. Proc. Natl. Acad. Sci. USA. **83:** 3019 - 3095.

22.Willadsen, P., G. A. Riding, R. V. McKenna, D. H. Kemp, R. L. Tellam, J. N. Neilson, J. Lahnstein, G. S. Cobon and P. Willadsen. 1990. Immunologic control

of a parasitic arthropod: Identification of a protective antigen from *Boophilus microplus*. J. Immunology. **143:** 1346 - 1351.

23. Rand. K. N, T. Moore, A. Sriskantha, K. Spring, R. Tellam, P. Willadsen and G. S. Cobon. 1989. Cloning and expression of a protective antigen from the cattle tick *Boophilus microplus*. Proc. Natl. Acad. Sci. USA. **86:** 9657 - 9661.

24. Cobon, G. S. and P. Willadsen. 1988. A novel vaccine against the cattle tick, *Boophilus microplus*. *In*. New Generation Vaccines. (M. Levine and G. C. Woodrow eds.). Marcel Dekker. p 901 - 917.

25. Tovey. E. R., G. S. Cobon, M. C. Johnson and B. Baldo. 1989. The cloning of a mite (*Dermatophagoides pteronyssinus*) recombinant protein that shares IgE-binding determinants with a 14-15 kDa component of mite extracts. Advances in Biosciences. **74:** 33 - 42.

26. Tovey. E. R., M. C. Johnson, A. L. Roche, G. S. Cobon and B. Baldo. 1989. Cloning and sequencing of a cDNA expressing a recombinant house dust mite protein that binds human IgE and corresponds to an important low molecular weight allergen. J. Exp. Med. Res. **170:** 1457 - 1462.

27. Turnbull, I. F., D. R. Smith, P. J. Sharp, G. S. Cobon and M. J. Hynes. 1990. Expression and secretion in *Aspergillus nidulans* and *Aspergillus niger* of a cell surface glycoprotein from the cattle tick *Boophilus microplus*, by using the fungal *amd*S promoter system. Applied and Environmental Microbiology. **56:** 2847 - 2852.

28. Sharp. P. J., B. McInerney, D. R. Smith, I. F. Turnbull, D. H. Kemp, K. N. Rand and G. S, Cobon. 1990. Chromatography and generation of specific antisera to synthetic peptides from a protective *Boophilus microplus* antigen. J. Chromatography. **512:** 189 - 202.

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30. Cobon, G. S., D. H. Kemp and P. Willadsen. 1991. Cattle tick vaccines. Todays Life Science. **3:** 20 - 26.

31. Sharp, P. S., D. R. Smith, W. Bach, B. M. Wagland and G. S. Cobon. 1991. Purified glutathione-S-transferase from parasites as candidate protective antigens. Int. J. Parasitol. **2:** 839 - 846.

32. Willadsen, P., D. H. Kemp, G. S. Cobon and I. G. Wright. 1992. Successful vaccination against *Boophilus microplus* and *Babesia bovis* using recombinant antigens. Memoriaf do Instituto Oswaldo cruz. **87:** 289 - 294.

33. Cobon, G. S., J. R. Clarke, D. R. Smith, J. Hungerford and P. Willadsen. 1991. Progress toward the development of a vaccine against the cattle tick *Boophilus microplus In* Proceedings of the AVCA Pan Pacific Program. Darling Harbor, Sydney, May 1991.

34. Willadsen, P., D. H Kemp, G. S. Cobon and I. Wright. 1991. Vaccination against *Boophilus microplus* and *Babesia bovis* using recombinant antigens. Proceedings of the Malaria conference, Brazil 1991.

35. Willetts, N. S., and G. S. Cobon. 1993. Antiparasitic vaccines. *In*: Vaccines for Veterinary Applications. Butterworth-Heinmann Ltd. Oxford. p. 259 - 294.

36. Willadsen. P., P. Bird, G. S. Cobon and J. Hungerford. 1995. Commercialisation of a recombinant vaccine against *Boophilus microplus*. Parasitology. **110:** S43 - 50.

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38. Willadsen, P., D. R. Smith, G. S. Cobon and R. V. McKenna. 1996. Comparative vaccination of cattle against *Boophilus microplus* with a recombinant antigen, Bm86, alone or in combination with recombinant Bm91. Parasite Immunology. **18:** 241 - 246.

39. Willadsen, P., G. S. Cobon, J. Hungerford and D. R. Smith. 1996. The role of vaccination in current and future strategies for tick control. *In* Proceedings of International Conference on Tick Control. Mexico. 1995.

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## PATENTS

Co-inventor on eight international patents.

Much of the information contained in these patents has been withheld from publication in the scientific literature for commercial reasons.